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THOMAS-MORSE AIRCRAFT CORPORATION.



*Thomas-Morse Training 2-Seater
in flight over Ithaca, N. Y.*

THOMAS-MORSE AIRCRAFT CORPORATION



THE use of the Glenn L. Martin Company from its inception in a tiny garage in California, to its present position forms a brilliant chapter of accomplishment in the History of Aeronautics—a History but just begun.

Glenn L. Martin, young in years, is a Pioneer in flying. He taught himself to fly. He built his own machines. At nineteen he opened the little California garage. Here he dreamed his dream of the big future. Here he worked by day and studied by night to make his dream a reality.

At twenty-three Mr. Martin was an expert flier and a successful builder. Eight years ago he received official recognition from the United States as a builder of dependable aircraft. And from the humble roof tree in California has sprung the big plant in Cleveland. On Armistice Day the magnificent bomber in existence was the new Immort Marlin Bomber. The Martin Commercial Plane will accept no lower place in Peace.

THE GLENN L. MARTIN COMPANY

CLEVELAND

Builder of the Miscellaneous Aircraft Licensee



AVIATION AND AIRCRAFT JOURNAL

Vol. X

January 24, 1933

No. 4

Air Supremacy

MARSH GENERAL SEELY, Under Secretary of State for Air has recently made the claim that "England's claim to air supremacy cannot be granted on any other basis," he is further quoted as having stated, "The present position demanded it, and it was essential to our defense program to have both air and sea supremacy. Marshal Foch said that the next war would be in the air, because it will be swift, silent and sure death."

Just what "supremacy in the air" means in the present confused state of aeronautical opinion is difficult to determine. If it means supremacy in service the conclusion is incorrect as practically all countries now in the service of all countries would be absolute the day war was declared. Every country has obtained it just that are now in the experimental stage which will render present aerial values against them.

If General Seely means the forms now available in the permanent Air Service organization, the basis will be decisive for the entire power of each country in the form of evidence that will be several years of least be a real factor in determining a country's air strength.

It would be interesting if the Chief of Air Service would give to the public a comparative estimate of the present air strength of all countries in the same way as nations are compared. It might surprise some of our foreign friends to learn the situation.

The Legacy from War Aviation

THERE has recently been displayed a tendency to depreciate the advantages to civil aviation as a result of war aviation. It is claimed that military necessity forced lines of development that are of very little use to civil aeronautics and that designs that it is difficult to get away from the criteria of design that had been maintained for ten years or five years. The claim is made that those lines of development that help civil aeronautics would have been followed in its event or greater extent had there been no war.

One of the principal advantages that has resulted from the war has been the extension of the public airway. About 22,000 airplanes were trained in this movement. Their facilities, and to a lesser extent their methods, become steadily improved in aviation. The comprehensive system about 150 miles of the new stage building the country, because accustomed to air supplies in the air regularly. The decade of our war were connected with the greatest ease in the daily press and national movements. All of these advantages were a direct result of the war.

It is difficult to remove of a normal development of civil aviation that would have resulted in such interest. The value of aviation is the public in the fact that the military that civil aviation must not in transportation and that the public is the logic. If the public does not accept aviation as an accomplished fact it certainly will not buy air transportation.

The war added into large army laboratories and trained staffs. Much of the work of these staffs was along purely aerodynamic lines which is applicable in any type of air craft. These laboratories will exist, though with extended activities due to present lack of funds. Does any one pretend that as much valuable data would have been collected under the normal advancement of civil aviation, starting from its condition in 1914?

The Air Mail

THE action of the Senate Post Office Committee in recommending the Air Mail Appropriation in the Post Office Appropriation bill is one of the most fortunate decisions that could have been made for aeronautical progress in this country. Just at this time when the political situation is complicated by the impending election changes, it would be a disastrous blow to aviation if the new Postmaster General were to be hampered in his consideration of the future of the Air Mail by a shortage of operating funds. If Congress will give the Air Mail reasonable funds to expend under the new Administration, then progress can continue.

In this connection it is to be earnestly hoped that the next Postmaster General will be far-sighted and regard the Air Mail as one of the most important of the country's interests. One of the most important appointments to be made by the next Administration and one that will have a direct effect on the development of aeronautics in this country is the position of Second Assistant Postmaster General. Otto Praeger has served a noble in the American Aeronautical Hall of Fame which will always be respected and honored. If his successor is as broad-minded and discerning as the present head of the Air Mail, it will be a fortunate appointment.

Flying to Canada

THE Canadian Air Regulations of 1920 provide that airplanes entering Canada must be registered in the United States, that they must not be fully qualified military pilots and that they must not carry passengers for hire between points both of which are in Canada. Here all Air Service officers must obtain authority to fly across the border of the United States before embarking upon a flight, it is believed that the infringement of the law referred to comes from civilian fliers, who, no doubt, are not so aware of the Canadian air regulations.

Under present legislation there is no governmental agency in the United States charged with the control of aerial traffic and so there are no means in evidence the pre-empting information to restrict out of service except through aeronautical publications and the newspapers.

It is fortunate that the Canadian authorities have been so tolerant of the law being passed in the United States. There is an air doubt that if this situation continues much longer many delicate questions will arise which may prove embarrassing to both countries.

Myron T. Herrick, President of Aero Club

The annual meet that Myron T. Herrick of Cleveland had been elected president of the Aero Club of America has aroused the greatest interest in all who are identified with aviation. Since the American Flying Club and the Aero Club were founded, many new policies have been considered. Most of them have had as their basis the advancement of the work and knowledge of the club. It is now proposed to extend the membership of the club so that it may eventually in-



MYRON T. HERRICK
PRESIDENT OF THE AERO CLUB OF AMERICA
(Continued on page 10)

clude a country-wide organization of many thousand members. Mr. Herrick brings to the club a wide and varied experience. He was born at Hamilton, Ohio, October 9, 1885 and was a student at Oberlin College and Ohio Wesleyan University. He was admitted to the bar in 1925 and practiced law in Cleveland until he became interested in aviation. He has been president of the Society for Savings of Cleveland for many years. He also has served as president of the American Bankers Association.

His political career has been noteworthy. After holding several city and state offices he was elected governor of Ohio. He was a strong personal friend of President McKinley and served on his staff when he was governor. Later in 1912 he was appointed ambassador to France and served at such during the first year of the World War. He represented the great service rendered by Mr. Herrick, the Republic of France has conferred upon him the Grand Cross of the Legion of Honor. He is a trustee of the Carnegie Institute of Washington and is chairman of the American Committee for Devastated France.

Mr. Herrick has been interested in aviation since the early days of its development. He is one of our best known American flyers, having to his credit a long list devoted to large part to the public service.

Mr. Herrick belongs to the presidency of the Aero Club of America the benefit of a broad experience in both national and international affairs, and under his direction, will be carried forward an aggressive campaign for the strengthening of the Aero Club's national organization, devoted to the furtherance of aeronautical development both for civil and national defense purposes.

Colonel Jefferson DeMont Thayer, who has acted as president of the Aero Club of America during the re-organization period, became chairman of the Board.

The Aero Club of America Board of Governors under the new leadership will present in short time the board plans which have been considered and it is believed that its influence as a national organization will be greater than any local club can be. As representative of the F. A. I. it can accomplish much by the broader plan. Its influence on aeronautical legislation will be more far reaching than it has been and the membership will feel that it is accomplishing more results.

Aero Club of America Notes

Accommodations Increased

Secretary facilities at the Club House at 9 East 28th St., which was used as an executive library, into a dormitory. The library has been moved to the first floor, and a very attractive auditorium has been opened which has become popular with the members of the Club.

Aircraft Hall

Plans are being made to hold an aircraft hall in the near future, which promises to be a great success and will give an opportunity to many of the officers to meet their friends attending the hall.

American Country Club of Denver Affiliates with Aero Club

Colonel H. W. Alder, president of the American Country Club of Detroit presented a formal application for affiliation with the Aero Club at a recent meeting, when it was accepted with enthusiasm.

Fulbright Trophy Race to be Held at Detroit, Labor Day

The Contest Committee of The Aviation Country Club of Detroit, of which J. G. Vincent, is chairman, will conduct the contest for the Fulbright Trophy on Labor Day, 1921, at Detroit.

New Director of Naval Aviation

Capt. William A. Moffett, U. S. N., has been assigned to duty as Director of Naval Aviation in the Office of Naval Operations, relieving Capt. Thomas T. Greene, U. S. N., who is due for sea duty. Presumably the adjustment of important matters in connection with Naval Aviation, however, Captain Greene will remain on duty at the Navy Department for some time.

In the World War Captain Moffett was in command of the Great Lakes Naval Training Station, and is now in command of the U. S. Fleet of the Pacific Fleet. He has taken a keen interest in aviation and has given much attention to the activities of the air detachment of the fleet. Captain Greene in his post on direction during the last two years has shown an ability and capacity for advancing the interests of naval aviation, which has been highly appreciated in the Navy Department. In his tenure the NC-4 made the transatlantic flight, in the preparation for which the most important aeronautical difficulties were solved, Captain Greene.

With a Bureau of Aeronautics and a Flying Corps organized in the Navy, the opportunities for the chief of staff become will be immensely enhanced, but under existing conditions relative to aviation, Captain Greene has made a steady advance, and he will leave in his successor a firm foundation for the speeding of a large naval air program.

Naval Aviation Estimates for 1922

A. Subhead No. 1. Necessary Aircraft

Number added	Items	Bureau of C. & E.	Bureau of Engineer- ing	Total
2	NC Boats	\$250,000.00	\$52,000.00	\$302,000.00
2	Ship's Spotting Planes	185,000.00	155,700.00	340,700.00
17	Ship's Fighting Planes	787,000.00	401,000.00	1,188,000.00
11	Torpedo Planes	1,455,000.00	1,510,000.00	2,965,000.00
11	Photographic Planes	120,000.00	25,100.00	145,100.00
Northwest				
25	Communications, Photographic and Bombing Planes	437,000.00	506,000.00	943,000.00
14	Patrol Airplanes	750,000.00	774,000.00	1,524,000.00
22	Fleet Airships	202,000.00	236,000.00	438,000.00
TOTAL NECESSARY TRAIN-AIRCRAFT				
		\$3,226,000.00	\$3,093,000.00	\$6,319,000.00
Free Balloons				
18	10-10,000 cu. ft.	\$32,000.00		\$ 32,000.00
16	10-35,000 cu. ft.	33,000.00		33,000.00
34	Kite Balloons	518,000.00		518,000.00
2	Small Training Airships	125,000.00	\$ 34,000.00	159,000.00
2	Spare Envelopes	56,000.00		56,000.00
4	New Rigged Airships, Approximately B-Class	306,000.00	35,000.00	341,000.00
2	Spare Envelopes	80,000.00		80,000.00
4	New Rigged (Twins, English) Approximately C-Class	350,000.00	48,000.00	398,000.00
2	Spare Envelopes	76,000.00		76,000.00
2	Rigid Airships, to be begun	1,000,000.00	604,500.00	1,604,500.00
TOTAL LIGHTER TRAIN-AIRCRAFT				
		\$3,765,000.00	\$783,500.00	\$4,548,500.00
To continue authorized construction of Giant Boat				
	To continue miscellaneous new work (in Government Plant), appropriated July 1, 1921	\$200,000.00	\$90,000.00	\$290,000.00
		200,000.00	180,000.00	380,000.00
TOTAL CURRENT L/A AND H/A CRAFT				
		\$4,000,000.00	\$3,053,500.00	\$7,053,500.00
GRAND TOTAL SUBHEAD No. 1				\$13,372,500.00

B. Subhead No. 2. Necessary Equipment for L/A and H/A Craft

Items	Bureau of C. & E.	Bureau of Engineer- ing	Total
Mechanical Equipment for New Aircraft	\$60,000.00		\$60,000.00
Radio Accessories and Equipment and to replace obsolete equipment		\$579,750.00	\$579,750.00
Regain Spare Parts, Liberty, Hospital-Sum, Unacc. etc. acc. to service		550,000.00	550,000.00
Power Plant Equipment for spare		130,000.00	130,000.00
TOTAL NECESSARY EQUIPMENT	\$60,000.00	\$1,259,750.00	\$1,319,750.00
GRAND TOTAL SUBHEAD No. 2			
		\$1,319,750.00	

E. Subhead No. 5. Navigation New Equipment

Item	Bureau of Navigation	Total
Navigation Equipment	\$28,250 00	
Photographic Equipment	46,000 00	
Aerial Reconnaissance	20,000 00	
Equipment and materials of Instrument Repair Shops	25,000 00	
TOTAL		\$119,250 00
GRAND TOTAL SUBHEAD No. 5		
	\$119,250 00	

Expense and Allocation		Portals of C. & D.	Barren, Exp.	Portals of T. & D.	Portals of E. & D.	Barren of Fox	Total
Pacific Fleet	Largely					\$ 3,000.00	\$ 3,000.00
	Seawall					3,000.00	3,000.00
	MC Trailer					3,000.00	3,000.00
	Buildings						
	Landing Field	\$12,000.00	\$20,000.00	\$ 50,000.00	\$ 8,000.00	\$ 700.00	\$82,700.00
Atlantic Fleet	Wings					3,000.00	3,000.00
	Aircraft					3,000.00	3,000.00
	MC Trailer					3,000.00	3,000.00
	Buildings						
	Landing Field	181,000.00	438,500.00	36,000.00	6,000.00	100.00	\$625,100.00
Hampton Roads	70,000.00	238,125.00	200,000.00	30,000.00	5,000.00	\$543,125.00	
Providence	238,000.00	628,778.00	400,000.00	30,000.00	6,000.00	\$1,292,778.00	
Baltimore	40,000.00	128,100.00	100,000.00	2,000.00	4,000.00	\$274,100.00	
Annapolis	13,000.00	54,125.00	3,000.00	1,000.00	4,000.00	\$75,125.00	
San Diego	30,000.00	76,171.00	30,000.00	2,000.00	4,000.00	\$142,171.00	
San Diego	70,000.00	427,500.00	200,000.00	20,000.00	3,000.00	\$720,500.00	
Orlando	3,000.00	4,140.00	30,000.00	1,000.00		\$38,140.00	
Cape May	30,000.00	200,000.00	70,000.00	20,000.00	4,000.00	\$324,000.00	
Port. Esther	30,000.00	107,290.00	30,000.00	6,000.00	4,000.00	\$177,290.00	
Agency Factors and Philadelphia Vess. Yard	250,000.00	375,000.00	300,000.00	250,000.00	23,000.00	\$1,403,000.00	
Port Supply Base				42,000.00		\$42,000.00	
Steel Lanes		30,000.00				\$30,000.00	
Steel Structures				600.00		\$600.00	
Laboratory	100,000.00	200,000.00	200,000.00		40,000.00	\$540,000.00	
Palmer Field		81,000.00		3,000.00	4,000.00	\$88,000.00	
Dalhousie, Va.	8,000.00	40,000.00		3,000.00		\$51,000.00	
Washington Navy Yard (Wood Trawl and Engine Towing Laboratory)	15,000.00	50,000.00				\$65,000.00	
Notes:							
Quarters	40,000.00	122,425.00	130,000.00	6,000.00	4,000.00	\$292,425.00	
Port. Island	20,000.00	47,225.00	30,000.00	1,500.00	4,000.00	\$102,725.00	
San Diego (Devil Point)	12,000.00	55,500.00	5,000.00			\$74,500.00	
Edin.	20,000.00	102,300.00	30,000.00	4,000.00	3,000.00	\$159,300.00	
San Diego	12,000.00	55,725.00	12,000.00		3,000.00	\$82,725.00	
See Project							
Pacific Coast (Rapid Studies)			10,000.00			\$10,000.00	
Facilities:							
Cooking				15,000.00		\$15,000.00	
Overhaul of Plane from stores	100,000.00	70,000.00				\$170,000.00	
Mechanics (Plans, etc.)	121,000.00	210,000.00	70,000.00	30,000.00	5,000.00	\$436,000.00	
Total Structure No. 6	\$1,000,000.00	\$2,000,000.00	\$2,700,000.00	\$200,000.00	\$100,000.00	\$5,000,000.00	
Grand Total Structure No. 6		\$1,200,000.00					

C. Subhead No. 3. To Continue Authorized Construction of One Rigid Airship

Item	Bureau of C. & A.	Bureau of Engineer- ing	Total
For storage and repair of Fleet Airship No. 1	\$150,000.00	\$150,000.00	\$300,000.00
GRAND TOTAL BUDGET NO. 3	\$150,000.00	\$150,000.00	

D. Subhead No. 4, New Construction at Stations

Station	Barren of Y. & D.	Barren of Engineering	Total
London	\$25,000.00		\$25,000.00
Cape May	\$50,000.00		\$50,000.00
Cape Cod	\$80,000.00	\$75,000.00	\$155,000.00
Hampton Roads	\$70,000.00	\$50,000.00	\$120,000.00
Lakeview	\$1,500,000.00	\$65,000.00	\$1,565,000.00
Port Harbor	\$50,000.00	\$10,000.00	\$60,000.00
Pease River	\$250,000.00	\$18,000.00	\$268,000.00
San Diego	\$25,000.00	\$15,000.00	\$40,000.00
Great Lakes	\$100,000.00		\$100,000.00
Sub-TOTAL BARREN No. 4	\$2,175,000.00	\$173,000.00	\$2,348,000.00
Harbor	\$100,000.00		\$100,000.00
Swamp	\$50,000.00	\$25,000.00	\$75,000.00
San Diego (Dutch Flats)	\$50,000.00		\$50,000.00
Sub-TOTAL BARREN No. 4	\$200,000.00	\$25,000.00	\$225,000.00
Sub-TOTAL BARREN No. 4	\$2,375,000.00	\$198,000.00	\$2,573,000.00
San Diego (Proposed Station)			
Pease River (Proposed Station) (including improvement of land)	\$1,700,000.00	\$250,000.00	\$1,950,000.00
Sub-TOTAL BARREN No. 4	\$1,700,000.00	\$250,000.00	\$1,950,000.00
TOTAL	\$4,175,000.00	\$473,000.00	\$4,648,000.00
GRAND TOTAL BARREN No. 4		\$5,700,000.00	

G. Sakhsid No. 7. Experimental Work, Development of all Types of Aircraft

Fund Title	Name	Bureau of C & R	No. of Engineering	Bureau of Navy Data	Total
Experiments in regard to launching devices, catapults, arresting gear, etc.	\$ 200,000.00				\$ 200,000.00
Experimental Type A Planes	70,000.00		70,000.00		140,000.00
Experimental Type B Planes	60,000.00		80,000.00		140,000.00
Experimental Type C Planes	150,000.00		180,000.00		330,000.00
Experimental Miscellaneous Construction	175,000.00				175,000.00
TYPE BLASTING TEST AIRCRAFT	\$ 950,000.00	\$ 250,000.00			\$ 1,200,000.00
Experimental Twin-Engine Aircraft	\$ 110,000.00	\$ 30,000.00			\$ 140,000.00
Single Engine Three-Axis Craft	\$ 110,000.00	\$ 30,000.00			\$ 140,000.00
Continued L/A and H/A Craft					
Experimental research on materials, engines, etc.	\$1,500,000.00	\$1,500,000.00			\$ 3,000,000.00
To complete miscellaneous expenses unaccounted July 1, 1933	100,000.00				100,000.00
Race Experiments (Engineering)					
Race Developments (Engineering)					
Race Research (Researching)					
Optical Equipment			\$ 5,000.00		5,000.00
Aerial Instruments			3,000.00		3,000.00
Photographic Apparatus			30,000.00		30,000.00
Aerological Apparatus			3,000.00		3,000.00
Miscellaneous			2,000.00		2,000.00
Total Continued L/A and H/A Craft	\$ 3,280,000.00	\$ 3,380,000.00	\$ 35,000.00		\$ 6,695,000.00
TOTAL RESEARCH NO. 7	\$ 3,900,000.00	\$ 3,780,000.00	\$ 35,000.00		\$ 7,715,000.00
GRAND TOTAL STRIDES No. 1			\$3,765,000.00		

Moose Factory To Inuvik In 2 Hours!



Aeromarine Navy HS-2L Open Cockpit—Model-83

PRICE \$6500. IMMEDIATE DELIVERY

This is the celebrated HS-2L Navy Coast Patrol Flying Boat converted to meet the requirements of aerial photography, forest patrol, timber cruising, surveying and mapping, locating schools of fish for commercial fisheries, fire patrol, etc.

Opposite is described remarkable feat of this particular model. To encourage commercial aviation the U. S. Government has chosen The Aeromarine Engineering & Sales Company as a channel through which you may be allowed to purchase these beautiful boats at less than one third of what it cost to build them.

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Aeromarine Service Includes the ~~xx~~ of Reliable Pilots and Mechanics

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1800 TIMES BUILDING

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Instead of 3 weeks of hardships experienced by the Navy Balloonists

Last July the Canadian Government sent an expedition to make aerial photographs and surveys of the territory lying between Cochrane, the northernmost railroad, and the Hudson Bay.

This expedition had at its disposal the best aircraft produced by any of the Allied Powers, but finally selected for this perilous trip a U. S. Navy HS-2 Coast Patrol Flying Boat.

They flew from Toronto to Cochrane over the northern wilderness, and then made eight trips from Cochrane to Moose Factory, Matton, James Bay and Hudson Bay.

The flying time from Cochrane to Moose Factory was two hours—a trip that requires from three to six weeks by dog sled and canoe.

Although they flew thousands of miles, the perfect performance of this Navy HS-2 Flying Boat fully justified these experts in their selection of it as the type of aircraft best fitted to meet such a rapid test.

All over the country individuals and corporations are making big profits operating flying boats for passenger carrying, sight-seeing, aerial photography and other purposes.

This opportunity to buy one of these brand new, thoroughly reliable boats enables you of vision to start an aerial transportation company and purchase their equipment now, at one-third of what it can be purchased for later.

There are numerous points where aviators have made \$500 to \$1000 per week in passenger carrying in two and three seat machines. With one of these six seat boats the profit opportunity is doubled.

Write for our easy payment plan.

Unarmament boat, \$6160.

Open cockpit six seat boat, \$6500.

Enclosed cabin de luxe six seat flying machine, \$9000.

Aeromarine

been gliding down. No doubt like was obtained on the pyramidal target but had it been actual adverse conditions with a ship as the target at least five of the shots would have been direct hits, not including several possible ones.

The firing was over 11, with the gun pointer doing the pointing, and the shots were all grouped. The group was

National Aircraft Underwriters Association Seeks Data

The National Aircraft Underwriters Association, 121 Nassau St., New York, is endeavoring to obtain reliable data regarding the characteristics of the land over which airplanes fly along established or routes in this country. The Associa-



A PIONEER KEY HAWK

as satisfactory as was obtained this year with ground data and the last four shots from number 2 gun had the range correct, but were off in deflection due to the faulty pointing of the gun. This work is still in its early stages, and it is not possible to be done in the matter of accuracy and speed. However, these results have laid a foundation upon which future improvements can be built with testing and definite advantage to the Service.

The reputation of land defense being by balloons will be especially advantageous in this locality where haze and fog frequently reduce the visibility of the ground stations. Quite often this condition does not exist more than 10,000 to 20,000 yards out to sea and the balloons could thus go above the fog and see beyond it with perfect accuracy. With good visibility smoke ships can easily be tracked a distance of twenty-five miles from shore. The advantage of this is apparent. It is believed that for future work of this nature such balloons should fly with two baskets, one basket containing two observers and the tracking instrument, and the other basket containing the Fire Commander or some other officer properly trained in air work who can spot shots, make targets, transmit intelligence, etc.

Reserve Commissions for Flying Cadets

Authority has been granted the Air Service to offer commissions in the Officers' Reserve Corps, inactive status, to flying cadets appointed from an enlisted status who do not secure their discharge under the provisions of the act of July 11, 1918, and revert to the grade held by them prior to their appointment as flying cadets. Appointment in the O.R.C. will be made after successful completion of their training.

Airport Facilities Around Puget Sound

The only establishment on the Thirtieth Naval District equipped for and equipped to make extensive repairs to aircraft is the Boeing Airplane Co., Seattle, Wash. The J. W. Boeing Aircraft Co., Green Lake, Wash., has a small shop and makes minor repairs on aircraft. One, of course, has obtained direct airplane between the Cascade and the Olympic Mountains. Of suitable for aircraft is located in 1918.

Spokane has land anywhere in Puget Sound, Lake Washington, Gray's Harbor, Lake Kootenai, Willapa Harbor, and the Columbia River.

For land planes, the parade ground at Camp Lewis is excellent. Spokane has two excellent fields. King County, Wash., has bought and is improving 210 acres at Sandy Point in Lake Washington.

Home from Seattle to Portland

It is the opinion of aviators experienced in flying in this section that the best route for a complete return to Seattle, Wash., and Portland, Ore., is up Puget Sound to Olympia, then westward until the Chehalis River is reached, down the Chehalis River to Gray's Harbor, thence either over the Puget or Willapa River to the mouth of the Columbia River, then up the Columbia River.

On this route it is necessary to attain an altitude of 10,000 ft., consequently craft not able to get to high should not attempt it.

In the reverse direction Mount Rainier should be headed for after leaving Gray's Harbor until the Sound is reached.

In alternate route is to follow the Sound and then to Pasa Pasa until in the vicinity of Chehalis Bay, then south westerly until northwest of Cape Mudge, over Lake Olin to the Pacific then southwest to the mouth of the Columbia River. On this route an elevation of 5,000 feet will suffice.

Large landplanes can fly the Columbia River to Pasa Pasa, Wash., and up the Snake River to Lewiston, Idaho.

For land planes the best route between Seattle and Portland is to follow the Northern Pacific Railroad.

New Zealand to Here Air Mail

New Zealand will establish airplane mail routes along lines known to be possible by the post office. Post Office Secretary, according to J. B. Murphy, of Timaru, who is shipping at the Hotel Seaside, New York. Mr. Murphy is interested in an aircraft company in Timaru, New Zealand.

On his way back to New Zealand, the eighth passenger Liberty-Engelhardt Eagle, with a view to utilizing it in a tourist sight-seeing service over Mt. Cook, which is the great objective point of tourists in New Zealand. It is a daily carrying passengers around the 11,000-foot peak in winter conditions.

The government is also considering civilian aviation by the treatment of law and establishing landing fields. Mr. Murphy's company will operate out of Timaru between the cities of Christchurch, Dunedin and Invercargill, 600 miles in one direction and 800 miles in another. He has a contract to carry the air mail.

Aeromarine West India Airways

When the Aeromarine West India Airways announced the beginning of its aerial mail and passenger service between Key West and Havana, its operating schedule has been devised with remarkable regularity in spite of these airframe obstacles that are usually encountered in a new underbelly. The vessel engine, which is the only one of its kind, the pleasure of an air voyage over these tropical Airways in a big aeromarine heavy-passenger aerial carrier can only be experienced by actual experience.

The novelty of flying which draws many passengers to the Airways has now been replaced by its many advantages—speed, comfort and safety. It is a lack of knowledge which causes the "dangerous and sporting character" with which the general public has looked the flying machine and

which prevents it from deriving the great benefits offered by this new and wonderful means of transportation and communication. It is to be expected that the Airways between Key West and Havana will quickly succeed in gathering passengers, because easier travel is always on voyages will take to the comfort of the air.

These many advantages which the traveler will derive by



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the use of the Airways is preference in the steamship and similar to those which have made the London to Paris service possible, over which thousands of passengers have been carried during the past year.

The following is prepared from the company's folder.

AEROMARINE SCHEDULE KEY WEST-HAVANA

	FLY	TIME
Key West	12:00 p.m.	1:15 p.m.
Key West	2:00 p.m.	3:15 p.m.
Key West	3:00 p.m.	4:15 p.m.
Key West	4:00 p.m.	5:15 p.m.

FARE

Key West to Havana—single passage \$75.00

Key West to Havana and back to Key West \$150.00

Key West to Havana and back to Key West \$150.00

The fare may be charged for trips or tours by special arrangement, with the following exceptions: (1) for transportation with a car.

Many persons have asked questions regarding the trip to Havana and the company has put them in clearly that they will interest all aerial travelers.

1. A short time in the morning and the evening. The strong winds make impossible a departure in the morning.

2. How long it takes to get to Key West from Havana. It takes a quarter of an hour and a quarter of an hour.

3. How long it takes to get to Key West from Havana. It takes a quarter of an hour and a quarter of an hour.

4. The strong winds from Havana to Key West. It takes a quarter of an hour and a quarter of an hour.

5. How long it takes to get to Key West from Havana. It takes a quarter of an hour and a quarter of an hour.

6. The fare for a special arrangement. It takes a quarter of an hour and a quarter of an hour.

7. The fare for a special arrangement. It takes a quarter of an hour and a quarter of an hour.

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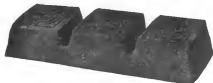
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